

Studies in African Bombyliidae. X. Taxonomic problems relevant to a catalogue of Ethiopian Bombyliidae, with descriptions of new genera and species

by

JOHN BOWDEN

23, Carisbrooke Road, Harpenden, Herts., England

Mythicomyiinae is the correct name for the subfamily including Cyrtosiinae and Platypyginae of authors; in this subfamily, *Cephalodromia* Becker is reinstated with *Ceratolaemus* Hesse as syn. nov. and *Mnemomyia* gen. nov., type species *rostrata* sp. nov., is described to include also *Glbellula mellea* Bezzi. In the subfamily Bombyliinae, *Bombylius stylicornis* Macquart is syn. nov. of *B. hypoleucus* Wied.; *B. aurovittatus* Macquart is syn. nov. of *B. fulvonotatus* Wied.; *B. phaeopteroides* Greathead is syn. nov. of *B. phaeopterus* Bezzi and *Bombylius modestoides* sp. nov. is described; *Gonarthrus leucomelas* sp. nov. is described to replace *Dischistus leucophys* auctt. nec Bigot. In subfamily Lomatiinae, *Lomatia leucophys* Bigot, comb. nov. has *L. oreoica* Hesse as syn. nov.; *Lomatia melanura* Bigot comb. nov. has *L. infusata* Bezzi as syn. nov. and *Canariellum* Strand is re-instated for *acutangula* Loew comb. nov. and *neavei* Bezzi comb. nov., both ex *Lomatia*. In subfamily Anthracinae, *Litorhynchus* Macquart is a synonym of *Exoprosopa* Macquart; a lectotype is designated for *Litorhynchus hamatus* Macquart, type species of *Litorhynchus* and is shown to be the same as *Exoprosopa heros* Wied. (syn. nov.). *Litorhina* gen. nov., type species *Litorhynchus corticeus* Bezzi, is erected for those species previously in *Litorhynchus* auctt nec Macquart. The genus *Heteralonia* Macquart, type species *Exoprosopa oculata* Macquart, is defined including six subgenera, of which two are new: *Homolonia*, type species *Anthrax megerlei* Meigen and *Stenolonia*, type species *Exoprosopa loxospila* Hesse.

This paper attempts to clarify several matters which have arisen in the course of preparing a catalogue of Ethiopian Bombyliidae. A large number of type specimens have been examined and many hitherto uncertain taxa have been placed, often involving synonymy which will be given in the catalogue. However, some of these synonymies require clarification beyond that appropriate to or possible in a catalogue, and in some instances require creation of new taxa for satisfactory resolution. In addition, some nomenclatural matters are the cause of some new taxa, including a new genus and the opportunity is taken to comment on a major re-allocation of species from the genus *Exoprosopa* Macquart.

Subfamily MYTHICOMYIINAE

This designation is used for the subfamily previously named Cyrtosiinae (see, e.g. Hesse, 1967). Some authors (Melander, 1946; Hull, 1973) adopt two subfamilies, Mythicomyiinae and Platypyginae, distinguished by a single character, the presence or absence of vein S₂ (in notation of Melander and Hull, second longitudinal or R 2 + 3).

This character overlaps other important characters, such as head structure, and among a lot of undescribed African material I have species of, for instance *Empidideicus* Becker, which are distinguished by an evanescent vein S2 and other examples of overlapping characters will be discussed in a comprehensive study now in preparation of this extensive African material of Mythicomyiinae. Here it needs to be stated that there is no sound basis for the retention of two subfamilies on a single venational feature which is variable within what appear to be otherwise well defined taxa. I recognise at this time one subfamily, which should be known as Mythicomyiinae. This name was introduced by Melander (1902) in the Empidae; the genus *Mythicomys* was subsequently transferred to the Bombyliidae and the name Mythicomyiinae antedates Platypyginae Verral 1909 and Cyrtosiinae Becker 1913.

Within the subfamily there are two items which require explanation.

CEPHALODROMIA Becker

Cephalodromia Becker 1914: 121. Type species *C. curvata* Becker, monotypic.

Ceratolaemus Hesse 1938: 969. Type species *Platypygus xanthogrammus* Hesse, by original designation: as subgenus of *Platypygus* Loew; **syn. nov.**

This genus has had a chequered history. It was described (and see also Becker 1915: 152, Plate 1, figs 3, 4) as an empid, subfamily Hemerodromiinae. It was redescribed as an empid by Melander (1927), although he based this redescription upon a genuine empid, *Chelipoda pictipennis* Bezzi, which Melander transferred erroneously to *Cephalodromia*. Séguy (1938) synonymised *Cephalodromia* with *Cyrtosia* Perris, without giving reasons. Jones (1940) gave reasons why *Cephalodromia* could not be an empid and accepted Séguy's synonymy, as have Melander (1946) and Hull (1973).

Ceratolaemus was described as a subgenus of *Platypygus*. Hesse (1967) subsequently raised it to generic status, already implicitly accepted by Melander (1946) and, later, explicitly, by Hull (1973). Bowden (1965) pointed out that *Cyrtosia nilens* Loew was closely related to *xanthogrammus* and relegated *Ceratolaemus* to the synonymy of *Cyrtosia* pending revision of the taxa involved, but later (1975) accepted *Ceratolaemus*, as distinct from *Cyrtosia*, as a subgenus of *Cyrtisiopsis* Séguy.

However, *Cyrtosia fusca* Séguy is a *Ceratolaemus*, not a *Cyrtosia*, and according to Séguy (1938) *curvata* "est très voisin de cette espèce" (i.e. *fusca*) and this statement, together with the differential characters provided by Séguy, suggests that Séguy directly compared his species with Becker's type, which was deposited in the Paris Museum. Séguy's species was collected on Mt. Elgon, Becker's at Molo on the western escarpment of the Kenya Rift Valley. The collection of large numbers of what seemed to be *C. fusca*, subsequently confirmed by comparison with the type, at a locality close to Molo and also at a locality on the eastern Rift escarpment, of which several specimens from the latter place were collected into alcohol, prompted the thought that, even if *fusca* and *curvata* were not the same species, they might belong to the same genus. Extensive search in Paris has so far failed to find the unique type of *curvata*, so one must start from Séguy's statements and try to reconcile what appear to be two major differences between *Cephalodromia* and *Ceratolaemus*, the absence in *Cephalodromia* of the empusal vein (Becker 1915, Plate 1, fig. 3) and the posteriorly produced lower occiput of *Ceratolaemus* which does not appear to be present in *Cephalodromia*. The second is the most easily disposed of. Unless the head is flexed upwards and the fore coxae

flexed backwards, the ventral occipital process, which seems so prominent, is easily missed, the outline of the head then appearing pear-shaped, the posterior process being indistinguishable from the propleuron. It is also a very subjective character – if one is not looking for it, one does not see it. Becker would not have been looking for such a process in a species he took for an empid, and specimens preserved in alcohol invariably have the head flexed towards the front coxae, in which position it is almost impossible to see the occipital process. As I have already noted, *nitens* Loew is a *Ceratolaemus*, having a prominently produced occiput, yet this species (assuming the identification to be correct) is illustrated as a *Cyrtosia* (which genus does not have the process) in Hull (1973, Fig. 37) without the process and therefore a head shape almost identical with Becker's illustration of *curvata*.

Having examined the types of most of the Mythicomyiinae described by Séguéy, and compared these specimens with his illustrations, it is clear that Séguéy was a meticulous artist – where he thought a character of note, it was shown. The illustration of *fusca* shows that characteristic occipital process; if this was not present in *curvata*, one may be confident that Séguéy would have remarked on such a difference between the two species. He did not.

The empusal vein in all *Ceratolaemus* is weak, in at least one undescribed species evanescent and hard to see even, as in that case, in a hyaline wing. The wing of *curvata* is described as distinctly yellowish; that of *fusca* is cinereous and in alcoholic specimens the empusal vein can appear as no more than a fold in the anal lobe. If Becker thought he was examining a hemerodromiine empid, he would not have expected to see an empusal (=anal) vein and probably would have considered the weak empusal as a fold in the membrane and so would not have included a fold in the illustration. Séguéy mentions differences in the course of the veins. He does not mention the complete absence of the empusal vein.

I am confident that there are reasonable explanations for the apparent discrepancies between *Cephalodromia* and *Ceratolaemus*. Becker's genus thus takes priority and the catalogue will list the African species. I have material of several new African species which will be described in a later study, together with a discussion of the very interesting zoogeography of the genus.

I propose to transfer to *Cephalodromia* another species about which there has been much uncertainty, namely *Empidideicus beckeri* Bezzi, 1908. It is clear that Bezzi had not seen any true *Empidideicus* when describing this species and even later did not understand the genus as witness his transfer (Bezzi, 1925) of *Glabellula mellea* to *Empidideicus*. Engel (1933) did not consider *beckeri* to be an *Empidideicus* but did not re-allocate it and Hesse has both included (1938) and excluded (1967) it from the genus, on the latter occasion without attempting any other generic assignment. Unfortunately the type appears to be lost. Dr Schumann informs me that the alcoholic collection at Berlin was dispersed and suffered loss during the 1939–1945 war; one of the casualties seems to be the unique type of *E. beckeri*.

However, Bezzi's description fits in almost every particular that is necessary to allocate his species to *Cephalodromia* near *longirostris* Hesse, both of which have yellowish mesonotal streaks, cf. Bezzi "... oben schwarz mit gelben flecken ...". The main discrepancy is that Bezzi says "Adervverlauf ganz wie bei Beckers Abbildung". The venation of *Cephalodromia* differs from that of *Empidideicus* in the presence of a marginal cell, i.e. S_2 present, but it is possible that in an alcoholic specimen this may have been overlooked. It is reasonable to assume that a species with the characters

described for *beckeri*, including "glänzend schwarz" and "stark glänzend" cannot be an *Empidideicus* and until further material is available to resolve the problem I propose *Cephalodromia beckeri* (Bezzi) **comb. nov.**

MNEMOMYIA gen. nov.

Type of genus: *Mnemomyia rostrata* spec. nov.

The generic identity of Bezzi's species *Glabbellula mellea* has for long been in doubt, its most recent allocation being tentatively to *Empidideicus* Becker. Through the kindness of Dr H. Schumann I have examined the unique holotype, still the only known specimen, which is preserved in alcohol. It possesses a combination of characters which, apart from a similarity in wing venation are quite unlike those of any other mythicomyiine. The British Museum (Nat. Hist.) has a single specimen of a closely allied species which, since it is a dry mount, I have made the type species of a new genus, named in joint memory of Theodor Becker and Mario Bezzi.

Body rather elongate; thorax not strongly arched, only a little broader than head, abdomen elongate, narrow somewhat flattened, only slightly broader basally than thorax, widening slightly at third segment.

Head: elongate; occiput well developed but not swollen, appearing very long in female due to small size of eyes; eyes distinctly slanting, very large in male but broadly separated with margins sinuous opposite base of antennae, very much smaller and with margins entire in female; ocelli large, round; frons broad or very broad, slightly produced anteriorly over base of antennae; face prominently swollen and blunt at apex with deep groove between upper edge of swollen part and frontal ridge; antennae set flat against head in groove between frons and face, first segment very short, rounded (obscured by frontal overhang), second short barrel-shaped, third elongate or elongate-oval with short, cap-like or very small conical style or fourth segment; head very broad beneath, more or less strongly excavate beneath eyes and with broad median ridge from buccal cavity to lower occiput; proboscis well developed, labrum strongly sclerotised, boat-shaped and when applied to labrum forming stout, beak-like proboscis, palps not evident.

Thorax with pronotum reduced to strap-like ridge; mesonotum with humeri differentiated but post-alar calli not or weakly so, a strong notopleural ridge, scutellum tumid, metanotum very strongly developed. *Abdomen* elongate, flattened, approximately parallel sided, eight visible segments in female, venter not overlapped by tergites thus appearing broad; small, rounded cuticular spots on some tergites; male genitalia retracted, last sternite simple, rounded; female with two spermathecae. *Legs* short, mid and hind coxae noticeably so, anterior coxae and femora dilated in male (a dimorphic character?), metatarsus only about twice length of next segment, hind tibia with about same ratio to its metatarsus; claws comparatively long, pulvilli broad. *Wing* with reduced venation; costa thick, ending soon after junction with S_4 , latter short and reaching wing margin a long way before wing apex, sub-marginal cell thus short; M_1 and M_2 weakly developed, even almost absent, M_{3+4} strong, Cu thickened at least basally, anal vein reduced or almost invisible, no discal cell, basal cells almost fused, first posterior cell apically broad; anal lobe very broad; microtrichiae very sparse on membrane, fringe very short and fine; squama well developed. *Pubescence* generally short and sparse; facial, labial, lateral mesonotal and pleural hair blunt tipped (remarkably similar to "touch hairs" on modified tarsi of some Exoprosopinae) and erect, pubes-

cence elsewhere decumbent, without obviously differentiated pre-alar or pre-scutellar setae.

This remarkable genus is quite distinct from any other mythicomyiine but cannot, at present, be referred to any other subfamily – if it is a bombyliid at all. It possesses the reduced venation found in genera such as *Cyrtoides* Engel and *Empidideicus* and the small cuticular spots found in many genera while the broad, smooth frons recalls *Onchopelma* Hesse and *Cyrtomorpha* White (themselves not “typical”). In other important characters, such as the elongate head, slanting eyes, strongly swollen face, the distinctive mouthparts, the sub-ocular excavation and the ventral ridge of the head, as well as the general body form, incrassate front legs and the structure of the vestiture, *Mnemomyia* differs so markedly from all other Mythicomyiinae that its allocation to this subfamily must be considered provisional.

***Mnemomyia mellea* Bezzi comb. nov.**

Glabellula mellea Bezzi, 1908: 180, fig. 1.

Empidideicus melleus (Bezzi); Bezzi 1925: 254 (key); Hesse, 1938: 979 (key); 1967: 115 (key).

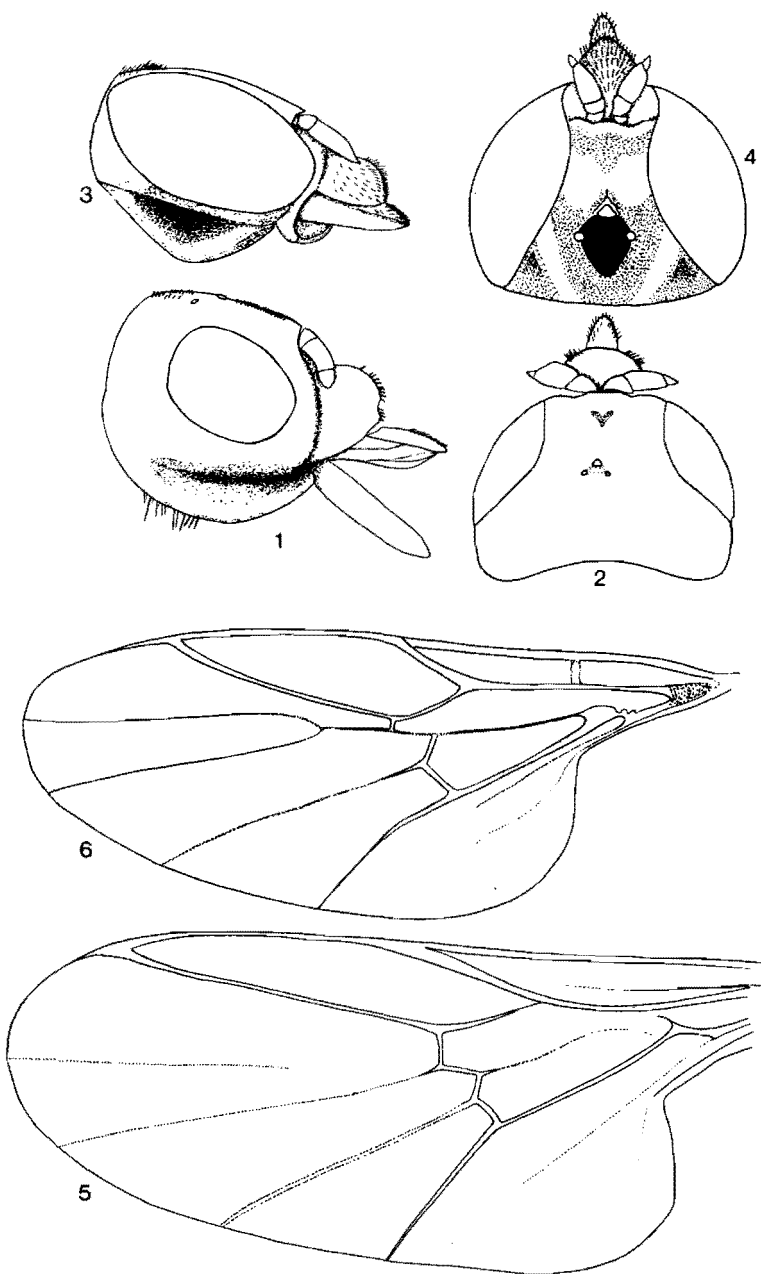
That Bezzi should have described this species as a *Glabellula* is perhaps understandable but that he should subsequently have transferred it to *Empidideicus* is almost incomprehensible and must cast considerable doubt on some other of Bezzi's generic allocations within the subfamily. The wing venation, it is true, is similar to that of *Empidideicus* but in no other character (apart from the common possession of small, shiny cuticular spots, which it is most unlikely that Bezzi would have noted in an alcoholic specimen) do the two genera resemble one another. Bezzi's description is inadequate in respect of the many distinct morphological features of *mellea* and is also misleading with regard to the mouth parts; the generic description now provided rectifies these defects.

The unique type is a female, not a male; Bezzi's general description of colour and pattern stands except that the colours have faded over the years and that the eyes are now red. The head as in figs 1, 2, with the sub-ocular excavation not very pronounced and the ventral ridge very broad, presumably because there has been no post-mortem shrinkage. The mouthparts have separated (compare figures for *M. rostrata* following) and what Bezzi took to be the palps is probably the horizontal, rigid labrum. There are two, round black spots at the apex of the abdomen; partial dissection suggests that these are spermathecae with very short stems. The wing as in fig. 5, the thickened veins very pale, the others almost invisible, the humeral cross vein very weakly indicated, the costa ending abruptly at apex of R_5 .

The type is in the Humboldt University Museum, Berlin.

***Mnemomyia rostrata* spec. nov.**

♂. *Head*: (figs 3, 4) occiput brown; vertex broad, blackish with paired yellowish stripes from inner eye angle to edge of occiput; ocelli yellowish on slightly blacker “tubercle” delimited anteriorly by a Y-shaped suture; eyes separated at narrowest point by about one and a half times distance between posterior ocelli, margins distinctly sinuous opposite bases of antennae; frons yellowish with median brown spots anteriorly; face yellowish medially, broadly brownish around edges; underside of head mainly light yellowish, the median ridge broadly brownish medially,



Figs 1-6. *Mnemomyia* species. 1-2. *M. mellea* (Bezzi), head. 1. Lateral. 2. Dorsal. 3-4. *M. rostrata* spec. nov., head. 3. Lateral. 4. Dorsal. 5. *M. mellea*, wing. 6. *M. rostrata* wing.

brownish stripes in sunken sub-ocular areas; antennae with first two segments yellowish-brown, third brown, latter about twice length of second with short, pointed apical segment a little less than one third length of third segment; proboscis black. *Thorax*: mesonotum black with paired, submedian reddish-yellow elongate spots on anterior margin, humeri yellowish-brown, notopleura broadly and continuously to post-alar calli ochraceous; pleura light yellowish, sternopleuron with large, shining black triangular patch on lower part, hypopleuron with similar shining black patch on posterior part; metanotum blackish-brown; scutellum yellowish-ochraceous with broad black median stripes. *Abdomen* dorsally entirely dark brownish, blacker on anterior halves of segments, VII distinctly yellowish-brown; reflexed edges of tergites and also venter yellowish-brown; genitalia deeply retracted, last sternite brown, parameres small, brownish; tergites IV to VI with small, round blackish lateral spots. *Legs* entirely yellowish, even last tarsal segments only lightly brownish; anterior coxae and femora swollen, anterior tibiae and metatarsi stouter than others; claws black. *Wing* (fig. 6) opaque, iridescent; thickened veins yellowish; microtrichiae and fringe minute; thoracic squama brownish, haltere with yellowish-brown stem and large, yellowish knob. *Pubescence* sparse, pale yellowish, that on mesonotum and disc of abdomen decumbent, uniform; that on face, proboscis, along upper notopleura, in median tuft on mesopleuron and at sides of abdomen at apex erect, blunt ended or even with slightly dilated heads; coxal hair long and fine, especially on anterior pair, decumbent, pubescence on legs otherwise mostly short and fine but apical tarsal segments with erect "touch hairs" of same type as on face etc.

Length of body 1.8 mm, of wing 1.3 mm.

MATERIAL EXAMINED. Holotype ♂ (gummed to transparent point), South Africa, Cape Province, Mossel Bay, xii.1934 (R. E. Turner). In British Museum (Natural History).

Easily distinguished from *mellea* by the different body pattern, *M. rostrata* is a most interesting addition to the remarkable series of small Bombyliidae collected by Turner at Mossel Bay.

Subfamily BOMBYLIINAE

Bombylius hypoleucus Wiedemann

Bombylius hypoleucus Wiedemann 1821: 168.

Bombylius stylicornis Macquart 1834: 381; **syn. nov.**

B. stylicornis was described from the Cape, was subsequently recorded by Macquart himself from Senegal, and has usually been referred to *Systoechus* Loew, though with no clear idea of its identity. A specimen in the Museum national d'Histoire Naturelle, Paris, stands over this name, but it cannot be putative type material as it comes from Senegal and is the basis of those records which place *stylicornis* in West Africa as well as in the south. On the other hand, in the Bigot collection at the British Museum are two sets of specimens identified as *stylicornis*, one set apparently though not yet assuredly by Macquart, the other set by Bigot, which both come from the Cape and are unequivocally the same as *hypoleucus*. This identity is consistent with

the original description and as it is a satisfactory resolution of an uncertain position, I propose to sink *stylicornis* Macquart to *hypoleucus* Wiedemann.

Bombylius fulvonotatus Wiedemann

Bombylius fulvonotatus Wiedemann 1818: 41.

Bombylius aurovittatus Macquart 1850: 119; **syn. nov.**

B. aurovittatus was described from South America. Painter and Painter (1974) designated a female lectotype from material in the Bigot collection in the British Museum and noted the similarity of *aurovittatus* and *fulvonotatus*. In the Bigot collection, specimens determined by Macquart as *fulvonotatus* are arranged immediately following the series of *aurovittatus*. As noted by Painter & Painter (1974) the specimens of *aurovittatus* are rubbed and carry fungus, but comparison with authentic *fulvonotatus* shows that they are the same species, and Macquart's determination of *fulvonotatus* is also correct. There has obviously been a mistake in the original locality data for *aurovittatus*, which should be deleted from Neotropical lists and entered in the African list as a junior synonym of *fulvonotatus* Wiedemann.

Bombylius phaeopterus Bezzi

Bombylius phaeopterus Bezzi 1924: 46; **stat. nov.**

Bombylius phaeopteroides Greathead 1967: 210; **syn. nov.**

Greathead (1967) discussed the complications arising from Bezzi's (1924: 46) identification of a male from "S. Abyssinia" as belonging to what Bezzi described as a variety of the Palearctic species *modestus* Meigen. However, Bezzi (1924: 46) also referred to another specimen of *phaeopterus*, stated to be the type, in the National Museum of Hungary in Budapest. Bezzi's work on the Bombyliidae of the Budapest Museum was never published and all the Bombyliidae were destroyed in 1956. Nevertheless, Bezzi referred to a type specimen.

Greathead (1967) concluded that the Budapest specimen probably belonged to a common coastal species, not the same as the Ethiopian specimen listed by Bezzi. To this common coastal species Greathead transferred the name *phaeopterus* Bezzi, elevating it to specific rank, and designated Bezzi's Ethiopian specimen as holotype of a new species, *phaeopteroides*. Unfortunately Greathead's conclusion, though probably correct, is invalid nomenclatorially and the name *phaeopterus* must stay with the specimen so identified by Bezzi. Since the type of *phaeopterus* may be presumed destroyed, the Ethiopian specimen, the only one now extant which Bezzi named *phaeopterus*, is herewith designated neotype of *phaeopterus* Bezzi. Data: ♂, S. Abyssinia, R. J. Stordy. In British Museum (Natural History). Described and illustrated, as *Bombylius phaeopteroides* Greathead (1967: 210, figs 9, 10).

Bombylius modestoides spec. nov.

Bombylius phaeopterus Bezzi *sensu* Greathead, 1967: 209 *nec* Bezzi.

The restriction of the name *phaeopterus* to the Ethiopian specimen leaves the species called *phaeopterus* by Greathead without a name. This is now rectified and a short description, taken from Greathead (1967) is given.

♂♀. Similar to *B. modestus*, differing as follows: *Head*: all hairs and bristles

glistening white except for black ocellar bristles; first two antennal segments in female reddish-brown. *Thorax* with hair sparser and white. *Abdomen* with long pale hair at sides of all segments; posterior half of middle third of II and middle two thirds of succeeding segments with yellowish-white, short scale-like hair except on extreme hind margins where they are white. *Legs* of female reddish brown. *Wing* in male with basal part, to distal end of basal cells, infusate chocolate-brown, the remainder faintly brownish, in female entire surface faintly brownish. *Male genitalia* – see Greathead (1967, figs 3, 4).

MATERIAL EXAMINED. Eritrea, Massawa, ♂ holotype, ♀ paratype, 5.iii.1954; 2♂, 22.ii.1954; ♂, Emberemi, 30.x.1956; all coll. D. J. Greathead. Holotype in British Museum (Natural History).

Gonarthrus leucomelas spec. nov.

Gonarthrus leucophys (Bigot) of authors, *nec* Bigot.

One of the commonest and most widespread species of *Gonarthrus* Bezzi has been known as *leucophys* (Bigot) and, apart from a query by Hesse (1938) as to the correctness of the type locality, given as Cape of Good Hope by Bigot, there has never been any doubt over what constituted *leucophys*, described as a *Dischistus*. Examination of the type has revealed a totally unexpected situation, as *Dischistus leucophys* Bigot is a species of *Lomatia*! Thus a very common African species is without a name; the following short description will establish that now proposed.

♂♀. Readily recognised by the almost entirely yellowish pubescence, varying from pale to golden yellow, with conspicuous rows of black bristles on abdomen above, at least some, usually numerous, black hairs intermixed on mesonotum and scutellum, frons of female with dense yellow pubescence; proboscis relatively long, 2.5–4.5 mm; wings slightly to distinctly greyish. *Male genitalia* (Hesse, 1938, fig. 186) with long hair on distal part of basimere, the inner angle at apex of basimere produced and sclerotised; aedeagus strongly curved with sickle-like apex, epiphallus short but prominent, sharply pointed.

MATERIAL EXAMINED. ♂ holotype, Uganda, Karamoja, 19 miles W of Koputh, 14.viii.1958, J. Bowden; and many other specimens from Côte d'Ivoire, Ghana, Nigeria, Uganda, Kenya, Tanganyika and South Africa. Holotype in my collection.

Subfamily LOMATIINAE

Lomatia leucophys (Bigot) **comb. nov.**

Dischistus leucophys Bigot 1892: 368.

Lomatia oreoica Hesse 1956: 278, fig. 98; **syn. nov.**

The type of Bigot's species, a male from Hex River in excellent condition, is in the British Museum. It was with some astonishment that I recognised it as a species of *Lomatia*. Using the key in Hesse (1956) it runs easily to *oreoica* Hesse and agrees in all details with the description of that species, which thus falls to *leucophys*.

Lomatia melanura (Bigot) **comb. nov.****Dischistus melanurus** Bigot 1892: 369.**Lomatia infuscata** Bezzi 1921: 114; **syn. nov.**

It is not surprising that there has been some doubt over the identity of this species – which was described as headless. The type, in the Bigot collection in the British Museum, is a female, not a male as stated by Bigot, is now also minus the right wing, but is recognisably a species of *Lomatia*. The specimen is in good enough condition to compare with descriptions, and from those of Bezzi (1921) and Hesse (1956) it is the same as *infuscata* Bezzi, described from Natal, from whence came Bigot's specimen which is labelled "Natal, Pine Town, J. H. Bowker".

CANARIELLUM Strand

Canaria Becker 1913: 462. Type species *Anthrax brunnipennis* Macquart by original designation. Pre-occupied by *Canaria* Partington 1835 (Aves) (and others, 1837 and 1882).

Canariellum Strand 1928: 48, new name for *Canaria* Becker. Type species *Anthrax brunnipennis* Macquart, auct.

It has long been recognised that African species of *Lomatia* Meigen, with a dull, dusted integument and more or less dense pubescence, are, at least in appearance, distinct from the shining black, often conspicuously banded (pale integumental bands, not different colours of pubescence) and always sparsely pubescent Palearctic species. However, resolution of the generic status of most of the African species will require detailed study. There are several more or less well marked groups whose relative status is unclear. But two species, *acutangula* Loew from Natal and *neavei* Bezzi from Malawi, are conspicuously different from other African species but very similar to *brunnipennis* Macquart, from the Canaries, which Becker accepted as sufficiently distinct from *Lomatia* s. lat. to warrant its own genus. This species is readily recognised by its long, darkly infusate wings, dark pubescence, strongly rounded first antennal segment, third antennal segment with small, bulbous base and long, conical style. The African species differ particularly in the long-conical third antennal segment, but are otherwise remarkably – particularly *neavei* – like the Canary species. It is thus appropriate to introduce *Canariellum* to the African list for *C. acutangula* Loew, **comb. nov.**, and *C. neavei* Bezzi, **comb. nov.**

Subfamily ANTHRACINAE

The Catalogue will contain a radically enlarged concept of this subfamily, since the Exoprosopinae will be merged and treated as a tribe within the Anthracinae. Justification of this step will be provided in a subsequent study but it needs to be referred to here because of two matters at the genus-group level within the Exoprosopini.

LITORHINA gen. nov.

Litorhynchus of authors, *nec* Macquart. Type species *Litorhynchus corticeus* Bezzi 1924: 212.

Large to very large flies of characteristic aspect. *Head* with occipital furrow narrow, occipital lobes contiguous; eyes with short bisecting line, widely separated at

vertex, frons thus relatively wide in upper part, gradually widening to antennae and with a more or less well marked central depression; face short, in profile either vertical or slightly round, not conical or prominently projecting, genae broad, genal sulcus deep and prominent; buccal cavity large, proboscis long or very long, not shorter than length of head and thorax combined, palps also long and slender; antennae widely separated, first segment much longer than second, third long-conical in shape with long terminal style at least half length of, but usually longer or much longer than, third segment and with a small apical stylet. *Thorax* with hair tuft on upper latero-tergite (=metapleural tuft) and plumula – both invariably white – katepisternum with scales, katepimeron and metathoracic epimeron (=hypopleuron) bare. *Abdomen* broad, with prominent lateral hair tufts on I and II invariably white and always with more or less prominent white lateral scale patches on sides of III and white scale bands at sides of VI and VII. *Legs* long and strong, front tibiae spiculate, front tarsi modified in both sexes, thickened and densely clothed with fine spicules; claws with basal tooth, front claws reduced, the outer claw a little smaller than inner one; no pulvilli. *Wing* with characteristic banded pattern, a broad band of colour extending over apex of discal cell to reach hind margin of wing more or less broadly, the colour either black or yellowish to brownish; three submarginal cells, cross vein s-m always before middle of discal cell, this cell elongate; veins between discal and the posterior cells and between first, second and third posterior cells markedly sinuous. *Male genitalia* with basimeres distinctly separated into proximal and distal parts, with a dorsal crest of very dense, stiff, sometimes spine-like, hairs; telomeres with bifid apices, upper point longer and more or less hook-like, lower shorter and blunter; aedeagus short, epiphallus large, broad and often with a dorsal (in situ) keel or apical cowl-like expansion, apodeme large, usually racket shaped; ninth tergite (apparent last sternite) large, scoop shaped.

It is necessary to provide a name for the group of large bombyliids, possessing a characteristic, readily recognisable facies and which form a distinctive and important element of the African fauna, previously named *Litorhynchus*. This name has had a complicated history, since it was created by Macquart in 1840 and particularly since it was apparently firmly established by Bezzi in 1912.

Macquart (1840: 78) included three African species in his new genus, *hamatus* as a new species, *seniculus* Wied. and *collaris* Wied., but said that ‘l’ ‘*Anthrax* lar F. et quelques autres’ presented the characters he had just described for *Litorhynchus*. No type species was designated by Macquart. Loew (:860) and Ricardo (1901) both relegated *Litorhynchus* to the synonymy of *Exoprosopa* Macquart, accepting all three African species as *Exoprosopa*. In the case of *hamatus* this would have seemed reasonable as, although Macquart gives as a generic character ‘Face un peu saillante, arrondie’ – which certainly fits *lar* – he begins the description of *hamatus* with ‘Face proéminente . . .’, which is true of *Exoprosopa* but not of *Litorhynchus*. Coquillett (1910: 562) designated *hamatus*, the first species, as type of *Litorhynchus* and sank this genus-group name to *Mima* Meigen, a name Coquillett was attempting to establish as senior to *Exoprosopa*, which name Coquillett also relegated to the synonymy of *Mima*. This genus is not currently recognised because its type species, *Anthrax phaeopterus* Mg. is itself unrecognisable. Bezzi (1912), probably in ignorance of Coquillett’s type designation, resurrected *Litorhynchus* (emended to *Litorrhynchus*) and in 1924 considerably expanded the genus, in spite of accepting (1924: 3) *hamatus* as type species. He (1924: 212) noted that the type species was ambiguous, showing characters of true *Exoprosopa*. Oldroyd (1940), claiming that there was no prior type designation, cited *Bibio* lar F. as type species. Even if it

might be considered that a catalogue of North American genera is an unlikely place to look for action on a characteristically African taxon which does not occur in North America, Oldroyd's oversight of a valid designation by Bezzi is surprising. Nevertheless, Hesse (1956) accepted Oldroyd's action, in which he was followed by Bowden (1964, 1974) and Greathead (1967) as well as others. However, Hull (1973) said that "dipterists at the National Museum of Natural History (i.e. Washington, D.C., U.S.A.) suggest that I change the name . . ." but Hull declined to change "a name in use for 130 years . . ." merely for strict adherence to the rules. Unfortunate though it may be, *Litorhynchus* cannot be retained; a clear and unequivocal breach of the rules must be rectified.

The matter is clinched by extant type material. Macquart described *hamatus* from 5 males "Du Cap. Collection de M. Serville". It is generally assumed that nothing of the Serville collection remains, but Bigot (1892) stated that in his collection was a specimen of *hamatus* "étiqueté par le main de l'auteur". In the Bigot collection at the British Museum is a specimen with a label in Macquart's writing "*hamatus* nov. sp." stuck on a Bigot label which includes the statement "coll. Serville". It would appear that at least one specimen from Serville's collection was acquired by Bigot, and, as the specimen fits Macquart's short description and not very good illustration, I have designated it as *lectotype* of *Litorhynchus hamatus* Macquart. It is a male in good condition with a prominent, conical face, white banded abdomen and a discal extension of the blackish wing infuscation, very narrowly separated from the main infuscation, and is clearly the same as *Exoprosopa heros* Wied., which finally sinks *Litorhynchus* to *Exoprosopa*.

In the Museum national d'Histoire Naturelle, Paris, there is a specimen labelled "*hamatus* Macquart" in Macquart's hand. This form of labelling was used by Macquart for specimens of previously described species; a specimen of original Macquartian type status is distinguished by the postscript abbreviation denoting a new species. The Paris specimen is *Exoprosopa seniculus* Wied., which Hesse (1956) has shown is the female of *Exoprosopa dux* Wied. I have also seen what Macquart identified as *seniculus* Wied.; it is what is currently known as *Litorhynchus macropterus* Loew (= *Litorhina macroptera* Loew, comb. nov.). Evidently, notwithstanding his generic description, Macquart put species into his new genus primarily on the basis of a similar wing pattern. Since there are almost as many species of *Exoprosopa* with a banded wing pattern as there are species of "*Litorhynchus*", and some of these species are common, there is a good chance that, on wing pattern, some species of *Exoprosopa* will be mistaken for "*Litorhynchus*". This resemblance has been the cause of 130 years of confusion.

The new name chosen is similar to the Macquartian name and also makes reference to the elongate proboscis so typical of the genus. The species selected as type is one of Bezzi's "Budapest" species, which was never fully described. Greathead (1967) has provided a detailed description and designated a neotype for this widespread, relatively common and wholly characteristic species. Francois (1972) states that *phloeochromus* Bezzi is the same as *corticeus*; I do not accept this and consider the two taxa to be separate although closely allied.

One more name must be disposed of in connection with *Litorhina* and *Litorhynchus*. Séguy (1938: 333) records *Litorhynchus maurus* (Thunb.) from Kenya and follows that name with "(= *Exosoma erythraea* Speiser nec Bezzi)". This is quoted by Hull (1973: 428) in the synonymy of *Litorhynchus maurus*. I am unable to find the source of Séguy's use of the name *Exosoma erythraea* Speiser; there is no reference to it in any of Speiser's papers dealing with Bombyliidae, and I conclude it was a lapsus for

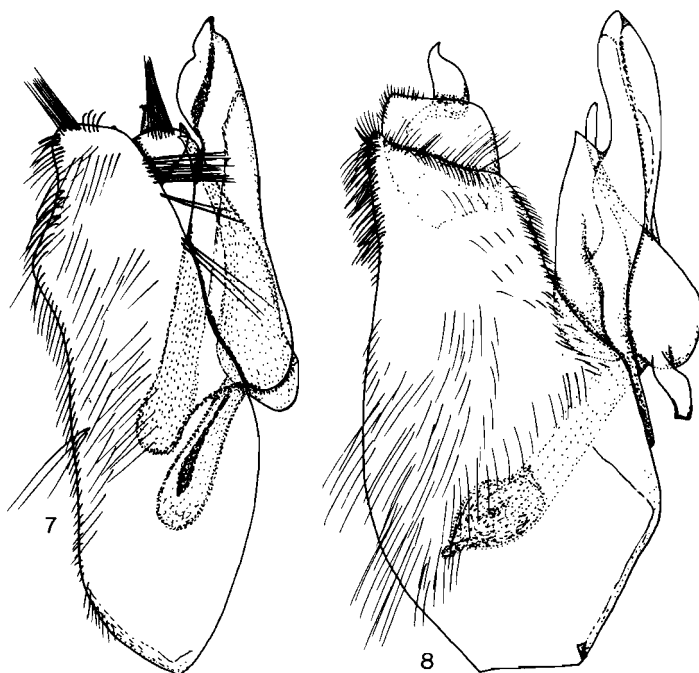
Exoprosopa. It is unavailable because no characteristics purporting to differentiate the subgenus, the status credited by Hull, were provided, either by Séguéy or Hull, and its first use in the Bombyliidae was as an apparent lapsus as a synonym of *Litorhynchus*. Further, since Speiser did not use it, certainly not in his paper recording *erythraea* Bezzi (*sensu* Speiser), its use in Bombyliidae can be considered to post-date *Exosoma* Jacoby 1903, nom. nov. for *Malacasoma* Dejean 1935 (Coleoptera) preocc. *Malacasoma* Huber 1820 (Lepidoptera).

The Catalogue will provide a full citation of all taxa now to be listed as *Litorhina*, and other changes consequent upon the synonymies given above.

HETERALONIA Rondani

Heteralonia Rondani 1863: 57. Type species *Exoprosopa oculata* Macquart (as *occulta*, *lapsus*), monotypic.

As I have already pointed out (Bowden, 1964), *oculata* Macquart has many of the characters of several species groups (or subgenera, depending on one's inclinations) currently included in the huge and unwieldy genus *Exoprosopa*. In 1964 my acquaintance with the *Heteralonia* – *Exoprosopa* complex was mostly with species occurring south of the Sahara, and I hesitated to establish *Heteralonia* because of the major consequences to the classification of the Exoprosopini, not only in the African fauna. In the past 10 years I have studied many species from the Palaearctic (including Asia) and Oriental Regions. It is clear that, though in some respects *Heteralonia* is difficult to define and is itself a large and varied genus, it is abundantly distinct from *Exoprosopa*, most notably in the characteristic male genitalia, which are remarkably uniform and so different from those of any other genus as to be diagnostic. The uniformity among the many species concerned is such that it is impossible to avoid the conclusion that they represent a genuine monophyletic line. The male genitalia, being specialised organs dedicated to one function, seem to have been unaffected by environmental conditions and adaptive changes, whereas other phenotypic characters, such as colour, wing pattern, size, form of body, legs, wings, etc. have responded in many and varied ways. Even so, all the species have a characteristic appearance and, particularly when on the wing, each can be immediately recognised as a *Heteralonia*. But the variety of characters now displayed makes it very difficult to provide a concise generic definition, except for the diagnostic male genitalia. These (figs 7, 8) are invariably small in relation to body size, basimeres shell-like and usually with an apical or sub-apical hair tuft; telomeres small, recessed, slightly hooked and with a strongly sclerotised inner bar connecting them; aedeagus short, apodeme very small, even vestigial; epiphallus elongate, lightly sclerotised, with rounded apex, lateral rami much reduced. Species otherwise with projecting, conical face, frons of about equal width in both sexes; antennal style stout, when elongate – half as long or more than third segment – then associated with variations of venation, otherwise short to vestigial when venation usually unremarkable but front legs short, stout and with spiculate tibiae; all claws with basal tooth; wings with a more or less extensive dark infuscation, never completely hyaline or simply dimidiate and rarely (extra – limital to Catalogue) banded, with or without spots on cross veins and bifurcations, often with deeper shading along veins, rarely with a yellowish wing pattern; three submarginal cells usually present but four in *Heteralonia* s. str, apex of marginal cell truncate, S_2 and S_3 bent more or less at right angles at their apices; discal cell elongate, narrow, its apical cross vein long, sinuous, parallel to wing margin; if short and straight and somewhat oblique then anal lobe reduced and wing thus pedunculate and genitalia do not differ; vein between discal and third



Figs 7-8. *Heteralonia* species, male genitalia, lateral. 7. *H. oculata* (Macquart). 8. *H. megerlei* (Meigen).

posterior cell sinuous or sharply angled and often emitting an appendix into third posterior cell (subgenus *Acrodisca*) or with this appendix bisecting third posterior cell to form an extra closed fifth posterior cell (subgenus *Metapenta*), or angled and cutting off a fifth posterior cell at base of third (subgenus *Mesoclis*); anal lobe narrow, not or only slightly wider than empusal cell, or (subgenus *Stenolonia*) narrower than empusal cell and alula reduced, wing thus pedunculate; males frequently with wings markedly broader than females.

The genus includes a large number of species and it is convenient to adopt several subgenera. These, with brief diagnostic characters, are:

Heteralonia Macquart, s. str. With four submarginal cells in wing.

Mesoclis Bezzi 1924: 228. Type species *Anthrax pygmalion* F., by designation of Bezzi, 1924: 228. With five posterior cells, the third closed and stalked; antennal style short, less than half length of third segment; front legs slender and elongate.

Metapenta Bezzi 1924: 230. Type species *Exoprosopa pentala* Macquart, by designation of Bezzi 1924: 230. With five posterior cells, the additional cell being closed and cut off at base of third posterior cell; antennal style short, not more than about half length of third segment; front legs slender, feebly spiculate tibiae.

Acrodisca Bezzi 1924: 234. Type species *Exoprosopa angulata* Loew, by designation of Bezzi 1924: 234. With three submarginal and four posterior cells, vein between discal and third posterior cells sharply angled, with or without an appendix into third posterior cell;

antennal style short to rudimentary; front legs usually stout, relatively short, the tibiae spiculate. With this subgenus I synonymise *Cladodisca* Bezzi 1924: 243, type species *Anthrax suffusa* Klug, by designation of Bezzi 1924: 243 (as *Exoprosopa suffusa*).

Homolonia subgen. nov. Type species *Anthrax megerlei* Meigen (= *Exoprosopa consanguinea* Macquart; = *Exoprosopa compar* Bezzi). With three submarginal and four posterior cells; cross vein $m_1 - m_2$ long, sinuous, more or less parallel to wing margin; discal cell long, narrow, not notably expanded apically, vein between it and third posterior cell long, sinuous but not angled or appendiculate.

Stenolonia subgen. nov. Type species *Exoprosopa loxospila* Hesse. With three submarginal and four posterior cells; cross vein $m_1 - m_2$ short, straight or only slightly sinuous, oblique to wing margin; discal cell very long and narrow; anal lobe narrow, not wider than empusal cell, alula reduced, wing thus appearing pedunculate; antennal style short, not more than half length of third segment; front legs stout, the tibiae spiculate.

The Catalogue will list all those African species which I accept as *Heteralonia* s. lat. and will allocate species among subgenera. The subgenera themselves will be discussed and more extensively characterised at appropriate places in subsequent studies and other papers on Palaearctic and Oriental taxa will deal with the subgenera of these Regions.

ACKNOWLEDGEMENTS

I am very grateful to the following colleagues for the provision of critical material in their care: Dr H. Schumann, Humboldt University Museum, Berlin; M. L. Matile, Muséum National d'Histoire Naturelle, Paris; the late M. J. Verbeke, Institut Royale des Sciences Naturelles, Brussels; Dr R. Crosskey and Mr B. H. Cogan, British Museum (Natural History).

REFERENCES

- BECKER, T. 1913. Genera Bombyliidarum. *Acad. Imp. des Sci. de St. Petersburg, Zool. Mus. Ann.* **17**: 421-502.
- BECKER, T. 1914. Dipteres nouveaux recoltés par Ch. Alluaud et R. Jeannel en Afrique orientale. *Annls Soc. ent. Fr.* **83**: 121-130.
- BECKER, T. 1915. Diptera Brachycera (1er partie), in Voyage de Ch. Alluaud et R. Jeannel en Afrique orientale, 1911-1912. *Resultats scientifiques. Diptera V*: 145-190.
- BEZZI, M. 1908. In Schultze: Zool. und Anthrop. Ergebnisse Forschungsreise in Süd Afrika. Vol. 1, pt. 1; Simuliidae, Bombyliidae . . . *Denkschr. med.-naturw. Ges. Jena* **13**: 179-201.
- BEZZI, M. 1912. Report on a collection of Bombyliidae (Diptera) from Central Africa, with descriptions of new species. *Trans. ent. Soc. Lond.* (1911): 605-656.
- BEZZI, M. 1921. On the Bombyliidae fauna of South Africa (Diptera) as represented in the South African Museum. *Ann. S. Afr. Mus.* **18**: 1-180.
- BEZZI, M. 1924. *The Bombyliidae of the Ethiopian Region*. British Museum (Nat. Hist.), London.
- BEZZI, M. 1925. Quelques notes sur les Bombyliides (Dipt.) d'Egypte, avec description d'espèces nouvelles. *Bull. Soc. ent. Egypte* **8** (1924): 159-242.
- BIGOT, J. M. F. 1892. Dipteres nouveaux ou peu connus. Bombyliidi. *Annls. Soc. ent. Fr.* (7) **2**: 321-376.
- BOWDEN, J. 1964. The Bombyliidae of Ghana. *Mem. ent. Soc. sth. Afr.* **8**: 1-159.
- BOWDEN, J. 1965. Diptera from Nepal (Bombyliidae). *Bull. Br. Mus. nat. Hist.* **17**: 203-208.
- BOWDEN, J. 1975. *Bombyliidae*. In *A Catalog of the Diptera of the Oriental Region*. Vol. II, Brachycera. Eds. D. E. Hardy and M. Delfinado. U. of Hawaii Press.

- COQUILLET, D. W. 1910. The type species of the North American genera of Diptera. *Proc. U.S. natn. Mus.* **37**: 499-647.
- ENGEL, E. O. 1933. *Bombyliidae*, Fam. 25. In Lindner, E., ed., *Die Fliegen der palaearktischen Region*. Lfg 69. Stuttgart.
- FRANCOIS, F. J. 1972. Revision taxonomique des Bombyliidae du Senegal (Diptera: Brachycera) Deuxieme Partie. *Bull. Inst. r. Sci. nat. Belg.* **48**: 1-39.
- GREATHEAD, D. J. 1967. The Bombyliidae (Diptera) of northern Ethiopia. *J. nat. Hist.* **1**: 195-284.
- HESSE, A. J. 1938. A revision of the Bombyliidae (Diptera) of Southern Africa. Part I. *Ann. S. Afr. Mus.* **34**: 1-1053.
- HESSE, A. J. 1956. A revision of the Bombyliidae (Diptera) of Southern Africa. Parts II and III. *Ann. S. Afr. Mus.* **35**: 1-972.
- HESSE, A. J. 1967. Additions to the Cyrtosiinae (Bombyliidae) of South Africa. *Ann. S. Afr. Mus.* **50**: 89-130.
- HULL, F. M. 1973. Bee Flies of the World. The genera of the family Bombyliidae. *Bull. U.S. natn. Mus.* **286**.
- JONES, C. G. 1940. *Ruwenzori Expedition 1945-5*. Vol. 2, No. 5. *Empididae*. British Museum (Nat. Hist.), London.
- LOEW, H. 1860. *Die Dipteren-Fauna Südafrika's*. Erste Abth. Naturw. Ver. f. Sachsen u. Thüringen, Abhandl. (1858-1861) **2**: 57-402.
- MACQUART, J. 1834. *Histoire naturelle des Insectes Dipteres*. Diptera, vol. 1. In Roret, N. N., ed., *Collection des suites a Buffon*. Paris.
- MACQUART, J. 1840. *Dipteres exotiques nouveaux ou peu connus*. Vol. 2., pt. 1: 5-135. Paris.
- MACQUART, J. 1850. *Dipteres exotiques nouveaux ou peu connus*. 4e supplement (part). pp. 5-161. Paris.
- MELANDER, A. L. 1902. A monograph of the North American Empididae. Part I. *Trans. Am. ent. Soc.* **28**: 195-367.
- MELANDER, A. L. 1927. Diptera, Fam. Empididae. Fasc. 185 in Wytsman, P., ed., *Genera Insect.* Brussels.
- MELANDER, A. L. 1946. *Apolysis*, *Oligodranes* and *Empidideicus* in America (Diptera). *Ann. ent. Soc. Am.* **39**: 451-494.
- OLDROYD, H. 1940. Entomological expedition to Abyssinia, 1926-27. Diptera-Brachycera, Tabanidae, Bombyliidae. *Ann. Mag. nat. Hist.* (11) **5**: 192-203.
- PAINTER, R. H. and PAINTER, E. M. 1974. Notes on, and redescrptions of, types of South American Bombyliidae (Diptera) in European and United States Museums. *Res. Publ. Univ. Kans.* **168**. Manhattan, Kansas.
- RICARDO, G. 1901. Notes on Diptera from South Africa. *Ann. Mag. nat. Hist.* **7**: 89-110.
- RONDANI, C. 1863. *Diptera exotica revisa et annotata*. pp. 99. Modena.
- SÉGUY, E. 1938. Mission scientifique de l'Omo. Diptera I. Nematocera et Brachycera. *Mem. Mus. natn. Hist. nat., Paris (N.S.)* **8**: 319-380.
- STRAND, E. 1928. Miscellanea nomenclatorica zoologica et paleontologica. I-II. *Arch. Naturgesch.* (1926), Abt. A, **92** (8): 30-75.
- VERRALL, G. H. 1909. *British Flies*. Vol. 5. London, Gurney and Jackson.
- WIEDEMANN, C. R. W. 1818. Neue Insecten vom der Vorgebirge der Guten Hoffnung. *Zool. Mag.* (Wiedemann's) **1**: 40-48.
- WIEDEMANN, C. R. W. 1821. *Diptera exotica*. 244 pp. Kiliae (Kiel).

Manuscript received 5 April 1975.